

## Research Interests

My research interest lies in Software Engineering and Machine Learning. Specifically, I focus on building large language models to solve software engineering tasks, with a specific interest in improving LLMs' **reasoning and planning** capabilities for **code generation and repair** through **pre-training** [1] and **post-training** [2, 3, 4, 7].

## Education

Since 2022 **University of Illinois Urbana-Champaign (UIUC)**,  
Ph.D. student in Computer Science,  
Advisor: [Lingming Zhang](#)

2018–2022 **Tsinghua University**,  
B.S. in Software Engineering,  
Double Major: B.S. in Business Administration

## Publications & Preprints

- [1] **Yifeng Ding**, Hantian Ding, Shiqi Wang, Qing Sun, Varun Kumar, and Zijian Wang. “Horizon-Length Prediction: Advancing Fill-in-the-Middle Capabilities for Code Generation with Lookahead Planning”. *arXiv; NeurIPS 2024 System 2 Reasoning Workshop*. [\[preprint\]](#).
- [2] **Yifeng Ding**, Jiawei Liu, Yuxiang Wei, Terry Yue Zhuo, and Lingming Zhang. “XFT: Unlocking the Power of Code Instruction Tuning by Simply Merging Upcycled Mixture-of-Experts”. *62nd Annual Meeting of the Association for Computational Linguistics (ACL’24)*. [\[paper\]](#) [\[code\]](#).
- [3] Yuxiang Wei, Federico Cassano, Jiawei Liu, **Yifeng Ding**, Naman Jain, Zachary Mueller, Harm de Vries, Leandro Von Werra, Arjun Guha, and Lingming Zhang. “SelfCodeAlign: Self-Alignment for Code Generation”. *Thirty-eighth Conference on Neural Information Processing Systems (NeurIPS’24)*. [\[paper\]](#) [\[code\]](#) [\[model\]](#) [\[dataset\]](#).
- [4] Yuxiang Wei, Zhe Wang, Jiawei Liu, **Yifeng Ding**, and Lingming Zhang. “Magicoder: Source Code Is All You Need”. *Forty-first International Conference on Machine Learning (ICML’24)*. [\[paper\]](#) [\[code\]](#) [\[model\]](#) [\[dataset\]](#).
- [5] Jiawei Liu, Songrun Xie, Junhao Wang, Yuxiang Wei, **Yifeng Ding**, and Lingming Zhang. “Evaluating Language Models for Efficient Code Generation”. *First Conference on Language Modeling (COLM’24)*. [\[paper\]](#) [\[code\]](#).
- [6] Jiawei Liu, Jia Le Tian, Vijay Daita, Yuxiang Wei, **Yifeng Ding**, Yuhan Katherine Wang, Jun Yang, and Lingming Zhang. “RepoQA: Evaluating Long Context Code Understanding”. *First Workshop on Long-Context Foundation Models @ ICML’24*. [\[paper\]](#) [\[code\]](#).
- [7] Chunqiu Steven Xia, **Yifeng Ding**, and Lingming Zhang. “The Plastic Surgery Hypothesis in the Era of Large Language Models”. *38th IEEE/ACM International Conference on Automated Software Engineering (ASE’23)*. [\[paper\]](#).
- [8] Quan Zhang, Yongqiang Tian, **Yifeng Ding**, Shanshan Li, Chengnian Sun, Yu Jiang, and Jiaguang Sun. “CoopHance: Cooperative Enhancement for Robustness of Deep Learning Systems”. *32nd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA’23)*. [\[paper\]](#).

- [9] Quan Zhang, **Yifeng Ding**, Yongqiang Tian, Jianmin Guo, Min Yuan, and Yu Jiang. “AdvDoor: Adversarial Backdoor Attack of Deep Learning System”. *30th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA '21)*. [\[paper\]](#).

---

## Experiences

- Since **Applied Scientist Intern, AWS AI Labs**  
05/2025 Hosted by: [Henry Hung Le](#), [Zijian Wang](#)  
Developing novel RL paradigms to advance reasoning models.
- 05/2024 **Applied Scientist Intern, AWS AI Labs**  
- 12/2024 Hosted by: [Hantian Ding](#), [Zijian Wang](#)  
Developing novel pre-training paradigms [1] to advance code LLMs.
- Since **Member, BigCode Project**  
04/2024 Contributed to [StarCoder2-Instruct](#) [3], where I instruction-tuned [StarCoder2](#).
- Since **Research Assistant, University of Illinois Urbana Champaign**  
08/2022 Advised by: [Lingming Zhang](#)  
Building and enhancing LLMs for code generation [2, 3, 4] and program repair [7].

---

## Academic Services

- Reviewer ICML, NeurIPS, ICLR, AISTATS, ACL/ARR, TOSEM (2024 - 2025)
- Organizing [LLM4Code'25](#) (International Workshop on Large Language Models for Code, co-organized with ICSE'25), [LLM4Code'24](#)

---

## Teaching

- 2025 Spring [UIUC CS 521: ML and Compilers](#) with [Prof. Sasa Misailovic](#) and [Prof. Charith Mendis](#)

---

## Invited Talks

- 11/2024 [CAMEL-AI.org](#): "Horizon-Length Prediction: Advancing Fill-in-the-Middle Capabilities for Code Generation with Lookahead Planning"
- 11/2024 [UCLA AGI Lab](#): "Improving Code Language Modeling via Horizon-Length Prediction"
- 10/2024 [UIUC FM/SE Seminar](#): "Horizon-Length Prediction: Advancing Fill-in-the-Middle Capabilities for Code Generation with Lookahead Planning"
- 07/2024 [Amazon Comprehend Team](#): "XFT: Unlocking the Power of Code Instruction Tuning by Simply Merging Upcycled Mixture-of-Experts"
- 04/2023 [Uber Programming Systems Team](#): "Equipping Large Language Models with Domain-Specific Knowledge for Automated Program Repair"

---

## Honors & Awards

- Since 2022 **CS PhD Fellowship**, University of Illinois Urbana-Champaign
- 2021 **Research Excellence Scholarship**, Tsinghua University
- 2019 **Academic Excellence Scholarship**, Tsinghua University